

AMENDMENT TO THE SPECIFICATION

Please amend the paragraph at page 1, lines 11-24, as follows:

Ethylene is produced by cracking a hydrocarbon feed to produce a hydrocarbon effluent comprising ethylene and numerous other products such as, for example, propylene, butadiene, and benzene. The hydrocarbon cracking is conducted at extreme temperatures, and the hydrocarbon effluent produced then flows from the hydrocarbon cracking heater to the TLE to be cooled. In addition to producing ethylene and other products, a coke material is also produced. The coke material can adhere to a TLE exchanger tubesheet, and eventually will require that the hydrocarbon cracking furnace be shut down in order to mechanically clean the TLE exchanger tubesheet. The adhesion of the coke material is partially because the hydrocarbon effluent velocity is lower on the outer edges of the TLE cone than in the center. Therefore, the reduction in velocity can cause the hydrocarbon effluent to swirl or form eddies, thereby causing the hydrocarbon effluent to have a higher ~~resonance~~ residence time. Generally, when the TLE exchanger is removed for cleaning, up to 20% of the TLE exchanger tubesheet is covered with coke material thus restricting heat transfer and thereby reducing the efficiency of the hydrocarbon cracking furnace.